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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/590,955	06/09/2000	Martin R. Johnson	1744.0710005	2387

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EXAMINER

ODOM, CURTIS B

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 04/22/2004

10

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/590,955

Applicant(s)

JOHNSON ET AL.

Examiner

Curtis B. Odom

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-16 and 24-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 30-33 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 8, 15 and 24-26 is/are rejected.
- 7) ☒ Claim(s) 3-7, 10-14, 16 and 27-29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

2. Claims 1, 4, 6, 8, 15, 24, and 30 are objected to because of the following informalities: "EM" is suggested to be changed to the word "electromagnetic". Appropriate correction is required.
3. Claims 3, 5, 7, 10, 12, 13, 16, and 27-28 are objected to because of the following informalities: "LO" is suggested to be changed to "local oscillator". Appropriate correction is required.
4. Claim 24 is objected to because of the following informalities: The phrase "said desired harmonic" is suggested to be changed to "a desired harmonic". Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 2, and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Nayebi et al (U. S. Patent No. 6, 014, 176).

Regarding claim 1, Nayebi et al. discloses a method of translating and phase shifting an electromagnetic signal, the method comprising the steps of:

receiving (Fig. 1, column 2, lines 14-30) an electromagnetic signal, wherein the receiver is configured to receive analog signals, wherein an electromagnetic signal is an analog signal;

generating (Fig. 1, column 2, line 30-column 3, line 13) a control signal (output of phase shifter) having a plurality of pulses that are phase-shifted relative to a reference phase, wherein the reference phase is the phase output from the oscillator and input to the phase detector; and

sampling (Fig. 1, block 2, column 2, line 14-column 3, line 13) the electromagnetic (analog) signal according to the control signal, resulting in a frequency translated electromagnetic signal that is phase shifted according to the phase shift of the pulses of the control signal.

Regarding claim 2, which inherits the limitations of claim 1, Nayebi et al. discloses varying the phase shift of the pulses of the control signal, and thereby changing the phase shift of the frequency translated signal (column 2, lines 30-56).

Regarding claim 24, Nayebi et al. discloses a method of up-converting and phase shifting a baseband signal, the method comprising the steps of:

receiving (Fig. 1, column 2, lines 14-30) an electromagnetic signal, wherein the receiver is configured to receive analog signals, wherein an electromagnetic signal is an analog signal;

generating (Fig. 1, column 2, line 30-column 3, line 13) a control signal (output of phase shifter) having a plurality of pulses that are phase-shifted relative to a reference phase, wherein the reference phase is the phase output from the oscillator and input to the phase detector; and

sampling (Fig. 1, block 2, column 2, line 14-column 3, line 13) the electromagnetic (analog) signal according to the control signal, resulting in a plurality of harmonic images that are each representative of the baseband signal and are phase shifted according to the phase shift of the pulses in the control signal, wherein sampling produces harmonic images that represent the baseband signal;

wherein the control signal has pulse widths (column 2, lines 2, lines 36-43), wherein since the control signal control signal contains pulses, the control signal has pulse widths.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2634

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nayebi et al. (U. S. Patent No. 6, 014, 176).

Regarding claims 25 and 26, Nayebi et al. discloses all the limitations of claims 25 and 26 (see rejection of claim 24 above) except for selecting a desired harmonic from the harmonic images and transmitting the desired harmonic over the communication medium. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that since sampling produces the harmonic images, the desired harmonic image would be the image which most accurately represents the baseband signal. Therefore, choosing and communicating this harmonic image is deemed a design choice and does not constitute patentability.

9. Claims 8 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nayebi et al. (U. S. Patent No. 6, 014, 176) in view of Deluca et al. (U. S. Patent No. 5, 949, 827).

Regarding claim 8, Nayebi et al. discloses a method of down-converting and phase shifting an electromagnetic signal, the method comprising the steps of:

receiving (Fig. 1, column 2, lines 14-30) an electromagnetic signal, wherein the receiver is configured to receive analog signals, wherein an electromagnetic signal is an analog signal;

generating (Fig. 1, column 2, line 30-column 3, line 13) a control signal (output of phase shifter) having a plurality of pulses that are phase-shifted relative to a reference phase, wherein the reference phase is the phase output from the oscillator and input to the phase detector; and

sampling (Fig. 1, block 2, column 2, line 14-column 3, line 13) the electromagnetic (analog) signal according to the control signal, resulting in samples that are phase shifted according to the phase shift of the pulses of the control signal.

Nayebi et al. does not disclose the signal is undersampled and integrating successive undersamples.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that undersampling is sampling at a rate less than the Nyquist criterion. Undersampling reduces processing capability requirements of the sampler which allows the device to facilitate the use of low cost circuitry. Undersampling is well known technique and does not constitute patentability.

DeLuca et al. discloses integrating successive undersamples using a continuous integrator (Fig. 1, block 130, column 1, line 52-column 4, line 50). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the method of Nayebi et al. with the teachings of the DeLuca et al. since DeLuce et al. states the continuous integrator eliminates the need for a post detection filter and synchronization is not required to demodulate the signal using the integrator (column 6, line 63-column 7, line 17).

Regarding claim 15, which inherits the limitations of claim 8, Nayebi et al. and Deluca et al. do not disclose amplifying the electromagnetic/analog signal. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to amplify the signal the increase the strength of the signal for transmission or processing. Amplifying a signal is well known in the art and does not constitute patentability.

Allowable Subject Matter

10. Claims 30-33 are allowable over prior art because related references do not disclose a pulse generator that is controlled by a local oscillator signal, wherein the pulse generator triggers and generates a pulse when the local oscillator signal exceeds a threshold and varying the time the the local oscillator signal exceeds the threshold of the pulse generator, and thereby phase shifting a frequency translated signal.

11. Claims 3-7, 10-14, 16, and 27-29 are objected to as being dependent upon a rejected base claim, but would be allowable if above objections are overcome and rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Fattouche et al. (U.S. Patent No. 5, 282, 222) discloses sampling an electromagnetic signal wherein the sampler is controlled by a phase control signal.

Schiltz et al. (U.S. Patent No 5, 339, 459) shows a sampler controlled by pulses generated from an oscillator signal.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis B. Odom whose telephone number is 703-305-4097. The examiner can normally be reached on Monday- Friday, 8-5.

Art Unit: 2634

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Curtis Odom
April 8, 2004



STEPHEN CHIN
SUPERVISORY PATENT EXAMINER
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